Comments regarding the Ecosystem Restoration Program Plan and the Water Quality Program

Ecosystem Restoration Program Plan

Volume I - Visions for Ecosystem Elements

As a vision document the volume did provide good descriptions for what one might wish the ecosystem to look like. The document would be much more effective if it were condensed to about a third of its present size. There is redundancy and the essential points could be made with fewer words.

Volume II - Ecological Zone Visions

Much of the information supporting the visions in Delta and Suisun Marsh/North San Francisco Bay ecological zones is missing or does not reflect current understanding of some of the processes and needs of key aquatic species. The wrong assumptions on processes and species needs leads to implementation objectives, targets and programmatic actions that may not achieve the desired objectives.

Below are a few examples of problems in the section on the Delta and Suisun Marsh/North San Francisco Bay ecological zones:

P10. The report cites changes the Delta's wetted perimeter between 1906 and 1993. For purposes of evaluating the impact of loss of wetted perimeter on the Delta ecosystem, changes during the period when many of the observed declines in aquatic resources would be more useful - ie.. from 1960 to 1990.

P12. The report indicates that there have been "slightly" increased water temperatures in the Delta. This conclusion is of no use without defining "slightly", showing which periods of the year these "slight" increases occur and data to support the conclusion. This supporting information is critical because of subsequent recommendations for actions to decrease water temperatures.

P12. The report shows entrainment indices for each decade from 1950 through 1980 but provides no indication of how these indices could be used to develop objectives, targets, etc.

P15 and elsewhere. The report makes the point that losses of nutrients, phytoplankton and zooplankton to diversions have a major impact on system productivity. Although this sounds plausible, data from our system don't support this conclusion. For example, Wim Kimmerer has calculated that losses of zooplankton

through the State and federal diversions have minimal impact on zooplankton standing crop.

p15 and elsewhere. Introductions of exotic species to the estuary has occurred through several pathways - not only by ballast water discharges as implied in the text.

P16 and elsewhere. The text states that higher late spring and winter flows will help restore delta smelt as will increased shallow water habitat. These assumptions are not supported by data in the report and could not be supported by current data we have on the species.

P16 and elsewhere. Much of the information on splittail isn't supported by what is known about splittail and, as with most of the discussion on factors controlling species abundance, no supporting data are presented. Splittail have rebounded with near record numbers in 1995. The adult population never showed a decline. It doesn't appear that losses to diversions affect splittail abundance.

P33 and elsewhere. There is little or no evidence that flows have much effect on productivity of algae and zooplankton, especially in Suisun Bay. There is no relation between phytoplankton standing crop and flow and the former relation between some key zooplankters has either deteriorated or disappeared. Indications are that detritus and other material washing into the system are more important sources of organic carbon than phytoplankton growing in the system. The bottom line is that increasing flows would have little or no effect on basic productivity with Potamocorbula in place.

This list could go on. Scientific support in this volume is critical because the material provides much of the basis for recommended actions to restore fish and wildlife.

We have similar concerns in the discussion of the Feather River/Sutter Basin Ecological Zone and offer the following comments:

P247 and elsewhere. Recommendations for the Feather River should be based on more recent data. A key action in the ERPP is to adopt minimum Feather River flows based on DFG (1993). DWR and DFG presently have a multi-year flow study underway in the Feather River. It seems prudent to wait until these results are available. Some specific concerns about the DFG (1993) criteria are provided below.

Higher minimum Feather River flows in Autumn may not substantially improve salmon spawning and egg incubation. The DFG proposal includes minimum flows of 1,700 cfs during the Oct. 15-Dec.31 period. The 1,700 cfs level is similar to the present requirements following Normal to Wet water years, but is higher than levels required when Lake Oroville is low during Critical and Dry years. The proposed flow levels would occur downstream of Thermalito outlet, where a relatively low percentage

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(25%) of spawning typically occurs. Hence, there may be little benefit to the majority of the salmon population.

There may be little benefit from higher late-spring flows in the Feather River. Also central to the DFG proposal is flows of 3,000-4,000 cfs during the May 1-June 15 period. These flows are unlikely provide much benefit for young salmon as virtually all juveniles migrate downstream before then. Although American shad are present in the Feather River during the late spring, we question whether the flow proposal would improve the spawning run. Unlike most other tributaries in the Sacramento River, there is no statistical relationship between the distribution of spawning American shad and the relative flow from the Feather (Painter et al. 1977; DWR, unpublished data).

The Feather River temperature recommendations may benefit Shad, but not Steelhead. In contrast to flow (described above), there is a good relationship between shad spawning activity and temperature, so managing the river with DFG's (1993) target late spring water temperatures could indeed help spawning. However, higher temperatures could adversely affect young Feather River steelhead, which rear through spring and summer in at least modest numbers. UC Davis under contract from DWR is presently developing a temperature model that may help to address this issue.

Volume III - Vision for adaptive management

The significant problem with this volume is our concern that not all of the CALFED agencies, staff, and stakeholders fully appreciate the concept of adaptive management as being used by CALFED. Adaptive management at the basin-wide scale being proposed requires an unprecedented commitment of resources and patience. Many of the potential drawbacks are listed on pages 10 and 11 but are subsequently glossed over. We are not certain that the Central Valley system can be adaptively managed, but if it can it will come with a huge price tag, involve considerable uncertainty (especially in the early years), and require an order of magnitude better integration of science and management than we have seen to date. This integration will be particularly difficult because CALFED will be changing a multitude of variables at the same time and the scientists will faced with the difficult and perhaps, impossible task of trying to figure out what happened and why.

Water Quality Program - Draft Component Report, August 1997

1. The Water Quality Program component report does not list all of the parameters of concern which should be listed. For example, aluminum concentrations in the Butte basin drainage exceed freshwater criteria for the protection of aquatic life. In addition, mineralization of agricultural return waters adversely affect

the use of water from the lower Sutter Bypass/Sacramento Slough for agriculture (high Sodium Absorption Ratio).

2. In addition, the current analysis of loading of the parameters of concern does not provide enough information to determine where and how much of the contaminants are being contributed by the various potential sources.

a. The loading calculations are based on annual totals which do not provide information on the spatial and temporal patterns of loads. Because of the use of annual loads, the information provided by the three-dimensional bar graphs used in the component report is of little meaning. This would be particularly true of parameters which occur at much higher concentrations upstream in the tributaries, but at very low concentrations in the Delta. These concerns were also discussed previously with CALFED consultants.

b. The report does not fully account for all of the sources of the parameters of concern, or contains all of the available data which could be used to accurately calculate loading information. For example, on page 7-3, bromide from agricultural subsurface drainage is identified as a significant cause of water quality problems in the San Joaquin River. This is further indicated by the bromide loading information in Table 4-1, which suggests that the two major sources of bromide into the Delta are from the San Joaquin Basin and the Lower Sacramento Basin below dams. In the discussion of bromide in Section 3, Parameters of Concern, p. 3-5, the source of bromide is identified as being primarily seawater and its inland intrusion, with uncertainty as to any inland origin. In the 1990 Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley, p.40, bromide is not even identified as a possible trace element of concern in agricultural subsurface drainage. Therefore, unless or until clear evidence to the contrary exists, agricultural subsurface drainage should not be identified as a source of bromide.

3. It appears that not all of the data which could be used were included in the component report. Appendix B contains an extensive list of water quality monitoring programs from which water quality data can be obtained. However, based on the data tables in the second half of Appendix B, it appears that the data used was from a much smaller set of databases.

4. The action strategies outlined in Section 7 of the component report are brief, lacking in detail, and nonspecific as to defining a clear direction for CALFED actions to address water quality problems. Therefore, it is not possible at this early stage of development to compare the different costs and technical feasibilities of specific actions. The component report does state that further analysis to determine appropriate programmatic actions will be conducted in Phase III.

5. Comprehensive monitoring plans developed under the CALFED Water Quality Program should be coordinated with other comprehensive monitoring programs which currently exist or will soon be implemented (e.g., the Sacramento River Watershed Program).

6. The target ranges for the parameters of concern should be revised to reflect EPA's criteria in the proposed California Toxics Rule.

7. A large part of the solution to the lack of anadromous fish in the Delta relates to poor spawning habitat (elevated water temperatures, sediments, etc.) in upstream tributaries. The component report suggests that the most common environmental impacts associated with water temperatures are localized effects caused by discharges at substantially elevated temperatures (i.e., thermal shock). However, for most tributaries, the problem is elevated stream temperatures from management activities (e.g., warm releases from a reservoir, removal of riparian cover, etc.) in the watershed that affect spawning success in tributaries.

8. The component report refers to NPDES permits issued to wastewater dischargers and their monitoring data. It is important to remember that the compliance monitoring data do not necessarily reflect what a discharger is discharging. Even though the discharges meet the requirements of the NPDES permit, the discharges could still cause significant toxicity through discharges of unidentified parameters of concern. For example, aquatic toxicity due to dioxin was caused by discharges from the Simpson Paper Company, even though all discharges met all permit requirements.

9. Section 6, Existing Programs, contains only a one line reference to the San Joaquin Valley Drainage Implementation Program, with no explanation of the Program, the 1990 Management Plan ("Rainbow Report"), the ongoing review and update of the 1990 Plan, and no discussion of the importance of the above to water quality in the San Joaquin River and Delta.

10. Section 6, Existing Programs, contains no reference to the ongoing Grasslands Bypass Channel Project, the ongoing drainage reduction and water quality improvement program of the Grassland Area Farmers, the water quality changes in Salt Slough and adjacent wetlands, and no discussion of the importance of the above to water quality in the San Joaquin River and Delta.

11. A footnote should be added to the Selenium Loadings Table 4-6 (2) to reflect the reduction in selenium load in Salt Slough as a result of implementation of the Grasslands Bypass Channel Project.

12. Section 6, Existing Programs, contains no reference to CVRWQCB ongoing programs, including investigations leading to proposed changes in salinity and boron standards for the San Joaquin River.

13. Section 6, Existing Programs, contains no reference to SWRCB recent action taken in response to the court-ordered USBR permit application for completion of the San Luis Drain.

14. Other programs listed under Agricultural Drainage, page 6-5, such as Westlands Water District's Groundwater Management Plan, have little relevance to agricultural drainage water quality affecting the Delta.

15. In Section 7, Action Strategies, page 7-10, timed agricultural drainage discharges is applied to salinity reduction, but emphasis of timed discharges or releases should be applied to selenium reduction instead.

16. In Section 7, Action Strategies, page 7-10, treatment of agricultural drainage is inappropriately applied to the reduction of salinity. Constructed wetlands have never been proposed as a means to reduce salinity, and other methods have never been shown to be economically feasible. In contrast, a UC Berkeley pilot project to remove selenium from drainage through constructed wetlands is currently under way in the Tulare Lake Drainage District, and a UCB study of selenium removal by plant volatilization is ongoing in the Westlands Water District.

17. In Section 7, Action Strategies, page 7-3, drainage reuse and salt utilization are both mentioned as CALFED agricultural drainage actions to be taken in the San Joaquin Basin. However, neither of these important actions receives any mention in the list of specific actions presented later in the chapter.

18. The Water Management Action Strategy, page 7-14, refers to the reduction of salinity concentration under Action, reduction of salinity loads under Performance Target, and reduction of concentration again under Indicator of Success; the inconsistency between concentrations and loads needs to be clarified.

19. The discussion of regional water quality monitoring programs on page 3-12 does not include mention of the extensive, ongoing, multi-agency and local monitoring in the Grasslands area related to the Bypass Channel Project. lease see Proposed Compliance Monitoring Program for Use and Operation of the Grasslands Bypass to Remove Agricultural Drainage from Grassland Water District Channels, USBR, November 1995.

20. Why does Table 3.4, CALFED Water Quality Parameters of Concern Target Ranges , not contain any target ranges for boron and salinity for the San Joaquin River?